CLAIMS

What is claimed is:

1   1.   An integrated circuit comprising:

2   a plurality of thermal sensors each placed in one of a plurality of different locations

3   across the integrated circuit; and

4   an averaging mechanism to calculate an average temperature from the plurality of

5   sensors.

1   2.   The integrated circuit of Claim 1 further comprising sense circuitry

2   coupled to each of the plurality of thermal sensors to compare a sensed temperature to a

3   threshold and to generate an interrupt in response thereto.

1   3.   The integrated circuit of Claim 1 further comprising a register associated

2   with the averaging mechanism to store a threshold temperature value and interrupt logic

3   associated with the averaging mechanism to generate an interrupt if the calculated

4   average temperature exceeds the threshold temperature.

1   4.   The integrated circuit of Claim 3 further comprising clock adjustment

2   logic to decrease a clock frequency of the integrated circuit in response to an interrupt

3   from the interrupt logic indicating that the threshold temperature has been exceeded.

1   5.   The integrated circuit of Claim 3 wherein the register is programmable by

2   the integrated circuit.

1   6.   The integrated circuit of claim 5 further comprising threshold adjustment

2   logic to program the register to a different threshold temperature in response to an

3   interrupt from the interrupt logic indicating that the threshold temperature has been

4   exceeded.

1   7.   The integrated circuit of claim 6 wherein the threshold adjustment logic is

2   further to program the register to a second different threshold temperature in response to

3   an interrupt from the interrupt logic indicating that the first different threshold

4   temperature has been exceeded.

1   8.   The integrated circuit of Claim 1 further comprising clock adjustment

2   logic to control the temperature of the integrated circuit by increasing and decreasing an

3   integrated circuit clock frequency in response to the calculated average temperature.

1   9.   The integrated circuit of Claim 1 further comprising halt logic to halt

2   operation of the integrated circuit in response to the calculated average temperature.

1   10.   The integrated circuit of Claim 1 further comprising an interrupt handler

2   to display information regarding the calculated average temperature to a user of the

3   integrated circuit.

1   11.   The integrated circuit of Claim 1 further comprising interrupt logic to

2   generate a first interrupt if the calculated average temperature exceeds a first threshold

3   and a second interrupt if the calculated average temperature exceeds a second threshold.

1   12.   A method comprising:

2   sensing temperature at a plurality of different locations across an integrated circuit; and

3   calculating an average temperature from the plurality of different sensed temperatures.

1   13.   The method Claim 12 further comprising comparing each of the plurality

2   of sensed temperatures to a threshold generating an interrupt in response thereto.

1   14.   The method of Claim 12 further comprising storing a threshold

2   temperature value in a register and generating an interrupt if the calculated average

3   temperature exceeds the stored threshold temperature.

1   15.   The method of Claim 14 further comprising decreasing a clock frequency

2   of the integrated circuit in response to an interrupt indicating that the threshold

3   temperature has been exceeded.

1   16.   The method of claim 14 further comprising programming the register to a

2   different threshold temperature in response to an interrupt indicating that the threshold

3   temperature has been exceeded.

1   17.   The method of claim 16 further comprising programming the register to a

2   second different threshold temperature in response to an interrupt indicating that the first

3   different threshold temperature has been exceeded.

1   18.   The method of Claim 12 further comprising controlling the temperature of

2   the integrated circuit by increasing and decreasing an integrated circuit clock frequency

3   in response to the calculated average temperature.

1   19.   The method of Claim 12 further comprising halting operation of the

2   integrated circuit in response to the calculated average temperature.

1   20.   The method of Claim 12 further comprising displaying information

2   regarding the calculated average temperature to a user of the integrated circuit.

1   21.   The method of Claim 12 further comprising generating a first interrupt if

2   the calculated average temperature exceeds a first threshold and a second interrupt if the

3   calculated average temperature exceeds a second threshold.